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## Nutritional Label and Consumer Buying Decision: A Preliminary Review

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### Abstract

A review of literatures reveals that many empirical researches on nutritional label in relation with consumer buying decision process have been carried out over the last twenty years. Nonetheless, the extent on how the concept of nutritional label was defined and used in the studies on food product buying decision tends to be varied from one study to another. Furthermore, the role of nutritional label in food product buying decision has not been made clear. This paper is presented with the aim to summarise and draw the common definition of nutritional label found in the previous studies. Beside that, this paper also discusses the types of label formats that could influence the use of nutritional label amongst consumers. In addition, the paper also rationalises the roles of nutritional label in consumer decision in buying healthy foods and highlights the relevant issues for future research undertakings.

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*Keywords:* nutritional label; consumer buying decision; food products

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### 1. Introduction

According to Buttress et al. (2004), one of the major health challenges is to identify ways to help consumers making the appropriate food choices. In 2004, World Health Organization (WHO) had recommended that nutritional label was one of the strategies to assist the public in making healthier food choice.

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Nutritional label is intended to inform customer the available choices and to stimulate the consumption and production of healthy product (Baltas, 2001). Nutritional label can affect the consumers' purchasing behavior significantly because some evidences reveal that the provision of nutrition information may allow consumers to switch consumption away from 'unhealthy' products in those food categories toward 'healthy' products more easily (Zarkin & Anderson, 1992). It also allows consumers to make an informed judgement of a product's overall value (APO, 2002). Therefore, the nutritional panel can be concluded as a form of guidance to a better diet and a healthier life (FDA, 1998) because consumers will have the ability to choose their diets which depend partly on the quantity and quality of information available through a variety of sources, including nutrition panel on food labels (Caswell & Padberg, 1999).

This paper is prepared with the aim to review the previous researches to fully understand the meaning of the nutritional label, the definition of the term 'the use of nutritional label', the role of nutritional label in influencing customer buying decision, the types of nutritional label formats and the direction for future research in nutritional label.

## **2. Methodology**

This study has identified and synthesized a compilation of more than 20 years of empirical researches. The relevant materials of academic publications are extracted from the following databases: Emerald, Science Direct and Social Science Index. Perusals are made to the abstracts of the studies to determine the relevancy of the papers.

## **3. Defining Nutritional Label**

According to Koe (1997), nutritional label can be defined as a description used to inform the customer about the nutritional properties of a food, which also help the customer in purchasing nutritious food and consuming nutritionally balanced meals. Besides, according to Centre for Food Safety in Hong Kong (Source: [www.cfs.gov.hk](http://www.cfs.gov.hk)), nutritional label is a systematic way of presenting nutrition information of food product. It is presented in a tabular format with headings such as "nutrition information", "nutrition fact", or "nutrition label". The nutritional label is required as a guide for the consumer to make selection from a list of food products and to encourage the consumption of healthy products (Baltas, 2001). In Malaysia, referring to Malaysia Dietary guidelines in 2007 (Ministry of Health Malaysia, 2007) the terminologies of nutritional label are defined as follows:-

### **a) Food labels.**

Food labels include any tag, brand, mark, pictorial or other descriptive matter, written, printed, stencilled, marked, painted, embossed or impressed on, or attached to or included in, belonging to, or accompanying any food.

### **b) Nutrition information panel.**

A table found in one section of a food label declaring the amount of nutrients contained in the foods.

### **c) Nutritional label.**

A nutritional label is a list of nutrient level of a product displayed on the food label. It is meant to provide the salient facts about the nutrition contents of the product.

According to the Centre for Food Safety in Hong Kong (Source: [www.cfs.gov.hk](http://www.cfs.gov.hk)), nutrient value in the nutritional label will be presented in various reference amounts such as per 100 g/mL, per serving and per package.

a) Per 100 g/mL

This is the common way to express energy and nutrient values. Usually per 100 g is for solid food while per 100 mL is for food in liquid form. For example, as shown in Figure 1, 100 g of Brand A biscuit contains 436 kcal (i.e.1831 kJ) of energy, 11 g of protein, 16 g of total fat, and so on.

b) Per Serving

It reflects the energy and nutrient contents of a specified amount (which is called the serving size) of food. Serving size is the amount of food people consume on a decent meal per session. The serving size is determined by the manufacturer. It is expressed in metric unit such as gram (g) or millilitre (mL). Sometimes, the serving size is expressed in pieces, cups, tablespoons, teaspoons etc.

c) Per Package

For package that only contains a single serving of food (for example, a carton of milk drink as shown in Figure 4), the amount of energy and nutrients may be expressed as per package.

It can be concluded that the nutritional label in food package is the information source that assists the customer in choosing suitable diets and avoiding unhealthy food products.

#### 4. What Does the Term ‘Use of Nutritional Label’ mean?

There were studies done in 2008 regarding the level, or intensity, of the usefulness of food labels to Spanish consumers and its relationship with some consumers’ features (Gonzalez-Roa & Calatrava-Requena, 2008 and Wills et al., 2009). The studies defined ‘the use of nutritional label’ as a “look at the nutritional label” of the food product. Gonzalez-Roa and Calatrava-Requena (2008) conducted a research with 1500 Spanish consumers. They categorised the respondents by regions and type of settlements (rural, urban and metropolitan). Information was gathered concerning whether or not consumers had consulted on the following information on the food labels: calories, preservatives and colouring substances, expiry date, geographical origin, ingredients, quality certificates, nutritional composition, Genetically Modified (GM) food components and health benefits. The researchers also studied on the type of consumers’ features to find out whether there was a relationship in regard with the use of nutritional label. Apparently, this paper did not mention or discuss whether the nutritional label had influenced the Spanish consumers in purchasing healthier foods (Gonzalez-Roa & Calatrava-Requena, 2008).

However, results of these studies showed that female consumers referred to nutritional label more frequent than the male consumer. The studies also revealed that 12.3% of respondents never looked at the expiry date and 80.6% never looked for Genetically Modified (GM) foods. For age type, people aged 55 years old and above were found using the nutritional label in lesser intensity as compared to younger people with the age ranging from 22 to 54 years old. Under education feature, the researchers found out that educated consumers use nutritional label as a source of information more frequent than the less educated consumers. In regard with the regional section, the highest score was in Cantabric area where the customers frequently used the nutritional label, while the area of Castilla-La Mancha-Extremadura scored the lowest (Gonzalez-Roa & Calatrava-Requena, 2008).

According to Wills et al. (2009), the researchers used two studies in reviewing the level of nutritional label use among consumers in European countries to determine the type of the nutritional label most preferred by the consumers and also to determine the usefulness level of nutritional label among the consumers. The reviewing from both papers concluded that most of the consumers in the European countries preferred the use of nutritional label and it was also found that they were more attracted to labelling on the front pack for easier reference and more user-friendly. In term of nutrition knowledge, majority of the consumers had already possessed the knowledge and know how to use the nutritional label.

In addition, the study also concluded that reading the nutritional label can influence and help the consumer in making a healthier food choice (Wills et al., 2009).

Other than that, the term ‘the use of nutritional label’ is also defined as “reading the nutritional label” (Harbor-Locure et al., 2001; Aprile & Annunziata, 2005 and Godwin et al., 2006). Research done by Harbor-Locure et al. in 2001, was to determine whether the label use/ read or non-use/ not read was independent to the importance ratings of selected nutritional and non-nutritional attributes on the labels of fresh-fluid milks. The research also intended to assess the influence of socio demographic and regional (SDR) to develop profiles of selected groups of label users and non-users. Findings regarding the use of nutritional label showed that eighty percent of the respondents reported using or reading food labels when making food purchasing decisions. Label users were more likely to regard calories, fat, sodium, and cholesterol as very or extremely important factors in deciding whether to buy fresh-fluid milk or not. Compared to the nutritional attributes, label users placed less importance on non-nutritional attributes such as prices and expiry dates when they were purchasing fresh-fluid milks. From the findings, it could be concluded that the consumers who used or read the nutritional label were intending to purchase healthier milk choice (Harbor-Locure et al. 2001)).

Aprile and Annunziata in their work in 2005 identified how often consumers read the labels, assessed the degree of consumers’ familiarity with the different data included in the label, identified the importance attached to the various details included in the label, identified which information included in the label would mostly affect consumers’ purchasing decisions and investigated the existence of different clusters and developed a description of them. The result of whether the nutritional label had influenced customers on their buying decision revealed that those who were concerned with their health would use the nutritional label as a source of information when buying healthier foods mainly because they were giving priority to their healthy lifestyle (Aprile & Annunziata, 2005).

A research carried out by Godwin et al. in 2006 to understand the frequency of label reading and the likelihood that individuals would thoroughly examine the label revealed that majority of the respondents agreed that reading the information on the food nutritional label helped them to be informed about the food they consumed. But again, this study didn’t focus or mention whether the use of nutritional label could help them in choosing a healthier food (Godwin et al., 2006).

Furthermore, the term ‘the use of nutritional labels’ is considered as “an act of information searched by consumer” (Banterle & Cavaliere, 2009; Grunert & Wills, 2007 and Grunert et al., 2010). Only labels that were exposed to the consumers could be expected to have any effects. The likelihood of exposure was increased if consumers actually searched for the information on the label, though active search was not a necessary precondition for the exposure, which might happen unexpectedly. Exposure leads to effects on subsequent behaviour only when the information was perceived. Perception can be conscious or subconscious, though conscious perception was expected to have stronger effects on subsequent behaviour. Perception leads to understanding, which was the meaning that the consumer attached to what was perceived (Grunert & Wills, 2007).

In order for nutritional label to have any effect, consumers must be exposed to them and must be aware of them. The effect will then be mediated by consumer understanding, which in turn will be affected by consumers’ nutrition knowledge. Based on their understanding, consumers may then use the label information to make inferences about the healthiness of the product, which, together with other information (for example, about the taste of the product) may affect the evaluation and eventually the purchase decision with regard to the product (Grunert et al., 2010).

## **5. Types of Nutritional Labels**

There are two types of nutritional label formats. In Malaysia, back-of-pack nutritional label is a common format that has been used by the food and beverage industries in representing the nutrition

contents in their food products. According to the previous researches that had been done in Europe, United State, Australia and New Zealand, the findings concluded that majority of the consumers found out that back-of-pack nutritional labels were confusing, especially on the numerical information and the terminology used (Cowburn & Stockley, 2005; EUFIC, 2005; Sadler, 1999; Shine, O'Reilly, & O'Sullivan, 1997 and Wandel, 1999). In addition to that, according to the reviewed literature on nutritional label format that was done by Cowburn and Stockley in 2005, it was concluded that particular vulnerable groups such as older consumers and consumers with lower levels of education and income were likely to have difficulties in understanding nutritional labels. Their review also showed that consumers had difficulty converting information from 'g per 100 g' to 'g per serving' and interpreting serving size information. It was revealed that during shopping on food products, customers had to take into account the contents of several nutrients simultaneously to ensure they choose healthier foods. According to the study that had been done by Black and Rayne in 1992, customers found that it was difficult to make the nutrient comparison and to simplify their task, the customer usually preferred to use a single nutrient (like fat) as the comparison standard. This might lead to a wrong food choice because products that were low in fat could be actually containing higher levels of sugar or salt.

In view of these problems, there is an urgent need for a simple nutritional label that can summarize all the nutritional profiles to enable easy understanding. Front-of-pack nutritional label is perceived to be a perfect solution. '*Front-of-pack label*' refers to labels positioned on the front of packaged foods, delivering nutrition information to consumers in various formats (Schor et al., 2010). According to Geiger et al. (1991) and Scott & Worsley (1994), a front-of-pack format is more effective and acts as the addition to the traditional numerical nutrition fact table on the back of package. It is useful in assisting the customers making the healthier food choice since it summarizes the whole nutritional profiles of the packaged food.

Another advantage of a simple label is that it reduces the cognitive effort and time needed to process the information as compared to more detailed labels (Geiger et al., 1991; Scott & Worsley, 1994). This situations occurred because the consumers usually had limited opportunity to process the label information and they were less concerned when shopping for groceries largely due to low understanding and knowledge in the use of nutritional label information (Eagly & Chaiken, 1993 and Fiske & Neuberg, 1990). Customer usually spent seconds rather than minutes when making a buying decision in a supermarket (Hoyer 1984). This research finding was also supported by the researches that were done by Higginson et al. in 2002 and Scott & Worsley in 1997 where their findings showed that the consumers only glanced at the nutrition information and did not process the information further at the point of purchase. From the previous research findings we could see the need of an effective front of the pack nutritional label that can summarize all the information in a simple and easy to understand format to influence the customer's decision making process. As mentioned before, the use of nutritional label could assist the customer in making a healthier buying decision by comparing and selecting the food products that are suitable for their diet.

## **6. The Role of Nutritional Label in Customer Buying Decision Process**

Nutritional label can simplify the whole concept of healthy diet because it helps the customers to keep track on the intake nutrients such as the amount of fat and sugar, sodium and fiber, protein and carbohydrates. It also assists consumers to make an informed judgement of a product's overall value. (Asian Productivity Organization, 2002). Nowadays, customer is concerned not only on the appearance of the products but also on the nutritional information in the packaged food sold at retail outlets (Din et al., 2011). By providing a nutritional label, it will assist the customer in making healthier choice (Hwang & Lorenzen, 2008; Drichoutis et al., 2006; Banterle & Cavaliere, 2009; Banterle & Cavaliere, 2000;

Cowburn, 2005; Zarkin & Anderson, 1992; Byrd-Bredbenner et al., 2000 and Wade & Kennedy, 2010). In general, it has been found that the use of nutritional label affects the purchasing behaviour mainly because the consumers want to avoid the adverse nutrients in food products (Drichoutis et al., 2006). Previous studies had proven the effect of using nutritional label consumption pattern toward a certain product. Table 1 provides a summary of the studies:

Table 1. Summary of studies on nutritional label

No	Product	Author	Journal title	Finding
1.	Meat	Alvin Schupp, Jeffrey Gillespie, and Debra Reed in 1998	Customer awareness and use of nutritional label on packaged fresh meat: A pilot study.	Finding from the research find that existence of nutritional label in meat product changes the customer buying pattern due to the use of nutritional label, the customer tends to buy the meat that contains low fat. (A. Schupp, J. Gillespie, and D. Reed, 1998).
		Arbindra P. Rimal and Stanley M. Fletcher in 2003.	Understanding consumer attitude towards meat labels and meat consumption pattern	Finding shows that the use of nutritional label also influences the customer especially female in choosing healthier meat such as chicken as compare to beef (Rimal&Fletcher 2003).
		Stephen Crutchfield, Fred Kuchler and Jayachandran N. Variyam in 2001	Valuing the health benefit of nutrition labelling: A case study for fresh meat and poultry product	Finding from the research state that consumer do value the present of nutrition labelling by choosing the meat that contain low fat (Jayachandran N. Variyam , 2001).
2	Cooking oil	Alan D. Mathios in 1998.	The important of nutrition labelling and health claim regulation on product choice: An analysis of the cooking oils market	The results indicate that after implementation of the nutritional label, consumers shifted purchases toward cooking oils of higher in saturated fat and lower in monounsaturated fat. (Mathios, 1998 )
3	Cereal	Jennifer L Harris, Jacqueline M Thompson, Marlene B Schwartz and Kelly D Brownell in 2011	Nutrition- related claims on children's cereals: What do they mean to parents and do they influence willingness to buy?	Parents do agree the importance of the nutritional label and they often use it during buying cereals for their children. Apart from those findings, willingness to buy the cereal was significantly related to beliefs about health-related outcomes and/or overall nutritional quality meanings for all claims. (Harris et al., 2011)

From the reviews, it can be concluded that the use of nutritional label can influence the consumption of food products. It can change the consumption pattern of the consumer by shifting from choosing the unhealthy food to a healthier food.

## 7. The Need of Future Research

According to the Census in 2010, the total population of Malaysia is 28.3 million, compared to 23.2 million in 2000. This gives the average annual population growth rate of 2.0 % for the period 2000-2010.

The largest component of population in Malaysia belongs to the age group of 25 to 64 years old (Malaysia Statistic Department, 2010). This age group was believed to suffer diseases that were mainly food related particularly due to the unhealthy diet intake (Stanton, 2011). One of the main reasons of why this could happen was because of the ignorance on the importance of food nutritional label amongst the Malaysian people. The future researcher could propose a study regarding the issue whether the use of nutritional label can influence the healthier food choice among the consumers.

In 2005, AC Nelsen had conducted a research in 38 countries from Europe, Asia Pacific, North America, Latin America and South Africa. The study had made enquiries to consumers regarding their understanding on food label; when they check labels and what they check for as they shop for their food products. The findings from the research showed that Malaysia was ranked 8<sup>th</sup> (29%) in the top 10 countries where users used nutritional label and claimed to “always” check the food label before making purchase. Among the Asian Pasific region, Malaysia is lagging far behind Thailand (41%) and India (32%) in term of customers who always checked the nutritional label during the purchase a food product.

According to the same research also, Malaysian consumers were on the highest ranking to check the nutritional information on the food package when they were about to buy the food product for the first time, with the score of 52% as compared to other consumers especially in other Asia Pacific countries. Malaysian consumers were also in second place after Singapore in relation to checking the nutritional information on the label with a score of 37%. From here we can see that the use of nutritional labeling is still poor among Malaysian people, because there are evidences that they only care to use nutritional label when they are buying the food product for the first time.

In 2010, a research regarding the level of understanding for four different types of nutritional information formats (current nutritional information format, Guideline Daily Amount (GDA), Multiple Traffic Light (MTL) and combination of Guideline Daily Amount (GDA) and Multiple Traffic Light (MTL)) was done by Fatimah et al., (2010). The study was conducted in Malaysia. Respondents of the research were the women consumers in hypermarkets. The results showed that the level of understanding of the current Nutrition Information Panel (NIP) format was 58.2% (‘good’ and ‘very good’), which meant more than half of the respondents could extract the nutritional information. However, most of the respondents (68.1%) preferred the current NIP format to be revised due to difficulty in understanding (43.1%), and nutritional information that was perceived to be insufficient (23.3%) and over simplified (21.6%) (Fatimah et al. 2010). According to Hawkes in 2004, the studies regarding the nutritional label especially in Asian countries were lacking because most of the ASEAN countries were still new in the implementation of food labelling regulation. In Malaysia alone, there was a scarcity in study regarding the use of nutritional label (Dr Norzaidi Mohd Daud et. al., 2011). The need of future research regarding the type of nutritional label format that can influence the customer prefer using it is highly needed because the finding can reveal which types of nutritional label formats would produce effects to the customer. Furthermore, future study can be done in the area of the most understandable nutritional label among the Malaysian consumers.

Moreover, the majority of the respondents found in most studies in Malaysia were formed by university students (Marjan et al., 1999; Nurliyana et al., 2011 and Norazmir et al., 2012). A few studies also found only focused on single type of respondent such as woman (Fatimah et al., 2010), small medium enterprise consumer (Norzaidi Mohd Daud et. al., 2011), chinese elderly (Yassin & Low, 1995) and consumers who have experience in dining at full service restaurant (Din et al., 2011). Future research regarding different types of respondents is needed to see whether the different in demographic characteristic can influence the use of nutritional label.

## 8. Conclusion



Defining what is meant by “the use of nutritional label” has been a multi-dimensional issue. This review indicates the questions guiding these definitions - at least from the previous researchers’ standpoints. Besides, this review also indicates the role of nutritional label in influencing the healthier food choice. Furthermore this paper review also discusses regarding the issue that can encourage the future researchers to develop their researches in this area for the purpose of generating a new knowledge.

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